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ECONOMIC AND SOCIO-ECONOMIC ASPECTS OF THE ENVIRONMENT

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INTRODUCTION

1. The purpose of the present introductory report is to comment on environmental problems displayed in the country monographs and to show their mutual relations so as to enable the Conference to arrive at clear conclusions and recommendations which could be used in the practice of the individual Governments. This introductory report can, of course, only state the problems but cannot solve them.
 2. The fact that the economic and socio-economic problems of the environment are complicated, little investigated and, consequently, little solved has been mentioned many times in the individual country monographs prepared in advance of the Conference. Therefore, one of the aims of the present report is to suggest how the problems of the environment could be systematically classified and evaluated from the economic and socio-economic viewpoints, thus facilitating their solution at a later stage.
 3. Moreover, in order to deal with the economic and socio-economic problems of the environment in a competent and stimulating manner, the report will point out the connexions existing between the economics of environment, on the one hand, and the economics of the life of modern society in general on the other. While the above relations in themselves require elucidation, all the scientific disciplines would seem to profit from a serious piece of research analysis before any scientifically-based recommendations and conclusions can be formulated.
- I. GENERAL TRENDS OF ASSESSMENT OF THE ECONOMIC AND SOCIO-ECONOMIC ASPECTS OF THE ENVIRONMENT
4. International discussion on the problems of the environment has been initiated only recently. The governments of the individual countries and their scientific and technical consultants are only now forming their ideas on the problems of environment; small wonder that their standpoints reflect the most varied interests, which are derived, as a rule, from the specific conditions of the respective country.
 5. However, the country monographs on the problems of environment show some general tendencies which, in the long run, might not be entirely favourable for the further development of the environment and which, therefore, should be discussed at this Conference as well as by those international organs and organizations which intend thereafter to deal systematically with environmental problems. The number of problems enumerated in the majority of the monographs includes problems closely linked with the technology of contemporary production, transport, forestry and water economy which only partly influence the quality of the environment in which man lives.

6. Typical problems are those of the water economy and the rational utilization of water resources, which are mentioned in the monographs of all countries. Water plays a role of great importance in the life of man. It is an essential condition of life on earth in general, it is an important means of production, it facilitates transport. It is also an important part of the biosphere in which the various components of man's food are produced. And, finally, water also forms an important element of the aesthetic and cultural value of the landscape, an environmental element which affects man emotionally and facilitates the recuperation of his strength and energy.
7. For all the above mentioned purposes water must be rationally and economically utilized. This would seem indispensable if only to meet the requirements of industrial production, agriculture and fisheries while disregarding those requirements emanating from man's use of nature as his environment. For this reason, the costs connected with water economy and conservancy, - as is the case in other sectors - cannot be attributed merely to the necessity of the protection and development of the environment. With such an approach some economists seem to think that the maintenance of a good and healthy environment is a costly luxury which a national economy cannot afford.
8. As a matter of fact, in some ECE countries as much as 90 per cent of the total use of water goes for industrial purposes (with part of it being recirculated several times before it finally reaches the sea) and only about 10 per cent serves the more direct needs of man. Water, therefore, must be treated and maintained within certain qualitative parameters not because it is just an environmental component but because it enables industrial plants to operate and produce good quality products. The situation can be considered analogous in the case of other environmental components such as soil, atmosphere, forests, etc. An urgent question has therefore to be raised - what part of the overall costs of running modern society could justly be attributed to the maintenance and development of the environment - as against those categories of costs relating to other functions of society.
9. Another general tendency in the assessment of environmental problems is that causes for the defects of the environment are sought in the development of industry, population, transport, etc. This tendency can be detected in the majority of monographs and studies presented to the ECE Secretariat.
10. The social as well as economic conclusions to be drawn from this fact might easily result in an endeavour to stop industrialization, urbanization, the technical progress of transport, etc. However, such an endeavour would probably mean stopping the development of human society in general.

11. Such pessimistic attitudes toward the further economic as well as social development of mankind can be traced in the works of some futurologists and sociologists. However, it has been gratifying to see that the monographs of some countries of the ECE region contain indications of a much more constructive approach to the solution of these problems.

12. The former and - in our opinion - pessimistic view maintains that modern society is necessarily destroying its environment and, consequently, undermines the framework of its future existence. In order to save what can be saved, the negative tendencies of contemporary development should be decelerated and thus the expectation for mankind of further survival prolonged.

13. The second approach which we consider optimistic and constructive says that the damage caused to the environment is not fatal and is not an unavoidable attribute of modern economic and cultural activities. Such damage should be seen as primarily due to the fact that society has not yet fully mastered all of its processes and activities and that unrestrained development has been allowed without rational and planned control. The application of the resources of the national economy to ensure an adequate environment has had little effect.

14. On the basis of these considerations the conclusion is sometimes drawn that it is not sufficient to protect the environment from the negative influences and consequences of the activities of modern society, but that it must be purposefully reshaped and completed in order to be fully responsive to contemporary needs as well as to those of the generations to come. It follows that the effectiveness of the environmental expenditures needed will probably be measured by other criteria than those currently applied to capital investments in industry, trade, transport, etc.

15. It is obvious, therefore, that a very wide field opens for discussion of the Conference - a discussion which should yield recommendations for concrete action as a framework for further ECE activities in this field. The discussion should primarily be based on the knowledge of concrete facts contained in national monographs and should tend to generalize the knowledge which results from them.

II. SELECTED ECONOMIC PROBLEMS OF EUROPEAN ENVIRONMENT

16. The region of the Economic Commission for Europe can be characterized as a conglomeration of relatively densely populated countries whose industry has developed considerably. However, areas still exist of an agrarian, underdeveloped character where a low productivity of labour persists.

17. This should be the basis for any further economic considerations regarding environment:

- (a) any disturbance of the quality of the environment in the ECE region affects a far greater number of people than would be the case in other regions. The effects and socio-economic consequences are far more important; consequently, the effectiveness of investments in favour of the environment can be far higher;
- (b) the disturbance of environmental quality in any country of the ECE region easily becomes an international problem as it often affects a whole group of countries. The development of international co-operation and particularly the need for international solutions of urgent economic problems of the environment are more pressing in the ECE region than in any other region of the world;
- (c) it is particularly in the ECE region where the problems of the environment cannot be solved merely by passive protection of its natural components. An active approach is indispensable and ought to be oriented toward the creation of a more perfect environment by the introduction of new technologies of production, new methods and means of transport, new methods of mineral extraction, new territorial organization of settlements, recreation facilities, etc.

18. Consequently, the European region is an example of one in which any solution of the environmental problems should be based on a scientific, multi-disciplinary approach, and on multi-sectoral considerations from the viewpoint of economics. Much of the action and co-ordination of action will have to be the responsibility of the State authorities.

19. As can be noted from the monographs, every problem of environment which is of a technical nature seems inevitably to become an economic problem at the same time. Here it should be stressed again that not all costs and investments relating to nature and its components necessarily represent environmental costs. Quite often, they are primarily the costs connected with the expansion of production, intensification of agriculture and forestry, etc. This problem can be further elucidated by means of some examples typical of the ECE region.

A. Water economy

20. Water, water courses and reservoirs, as well as lakes and seas, have many functions:

- biological : they are the biological environment for fish and other water animals, for important water plants, algae, etc. Water is drunk by the animals living on land as well as by man;
- production : water is a resource as well as an important auxiliary material and medium for various industries including power generation, agriculture and fisheries, as well as for sectors of a non-production character and households;
- transport : water is used for river and marine transport;
- hygienic : water is used for personal as well as public hygiene;
- cultural and aesthetic: water courses and reservoirs are decorative components of the landscape and of human settlements, they serve for recreation and sports, etc.

21. It is indisputable therefore that in order to fulfil its many functions, water should be clean and biologically valuable. The costs connected with the provision of biologically valuable water for food production and with the maintenance of sufficiently clean water therefore are primarily production costs. Purely environmental costs seem to be in this respect only costs connected with the safeguarding of cultural, recreational and sports functions which the water courses and reservoirs fulfil both in nature and in human settlements.

B. Atmosphere

22. The problems of the atmosphere resemble those of water only partly. So far the supply of air has not been as deficient as that of water; the dimensions of the air shed are so vast that a number of people still hold the opinion that air need not be economized. However, scientific forecasts have shown that the time may be already approaching when clean and biologically valuable air will become the problem No.1. although their mutual proportion may offer the functions fulfilled by air in the contemporary world are analogous to those of water:

- biological : air is needed for breathing of animals and plants;
- production : air may be here of considerably lesser importance than water, however, a number of technological processes (combustion, compressed air, cooling air, etc.) could not get along without air as a production medium, resource or auxiliary material;
- transport : air serves an ever expanding sector of transport;

23. Air being ubiquitous, people are much more sensitive towards a reduction in the quality standard of the atmosphere, the increased contents of dust and gaseous exhalations, and particularly towards the presence of odours. The demand for purity of atmosphere, therefore, is made much more by the population itself than by specific sectors of the national economy affected by polluted or even biologically aggressive atmosphere (agriculture, forestry, housing economy, etc.)

24. The individual county monographs have justly pointed out that, in many countries the households' share in atmospheric pollution is far bigger than that of industry which, in turn, complicates further the economic problems of atmospheric purity. Some countries have already collected positive experience with the reconstruction of whole urban sectors on the basis of new heating appliances based on the combustion of solid fossil fuels; ideas on or even calculations of the economic consequences of such measures have also been put forward.

25. In contrast to water where the problem of maintenance of purity would seem primarily to be related to the costs of single-purpose production and of transport, a far higher proportion of the costs of maintaining the purity of the atmosphere derive from environmental considerations. Industrial sources of gaseous and dust omissions are well known and classified; their location can be accurately identified which makes them controllable. With the exception, perhaps of the elimination of sulphur dioxide, technical means and technological processes exist which can be used for the elimination of all excessive impurities from the various discharges.

26. Atmospheric pollution caused by the private property of individuals (their dwellings, automobiles, etc.) is difficult to control. Some items, such as motor vehicles are very mobile, which results in the pollution of vast territories. The costs connected with the improvement of the environment in this particular case will have to be borne, to a considerable extent, by individuals, whether in the form of direct costs or indirectly in the form of taxes, dues, surcharges, etc.

C. Noise

27. The problems of noise are mentioned in a number of monographs in connexion with transport, and more particularly in connexion with air transport. A number of experts hold the opinion that noise is a specific case of atmospheric pollution, since it propagates by air. Somewhat neglected seems to have been the problem of vibrations, which is related to the problem of noise. However, the effect of vibrations has been examined lately in a number of research studies and has been classified as a

phenomenon seriously menacing human health.

28. The problem of noise is a typical example of an environmental problem which cannot be solved passively, i.e. merely by protective measures, but can only be solved by adopting active measures, i.e. by direct interventions at the source, by prevention, etc. The costs of a complete protection against noise are so prohibitive that they make such a protection unthinkable even in the economically most developed countries. At the same time it would not seem feasible, either economically, or politically, to force the population to carry the costs of individual protection against noise, e.g. by reinforcing the sound insulation of their homes, etc. A solution of this problem probably cannot be found in the near future. One of the most serious problems of the environment which requires international co-operation, first in research and subsequently in practical design and use, is the problem of transportation means and facilities. In the European region, where the transport network and particularly the network of air routes is very dense, the above steps should be implemented very rapidly. This might serve as an example and, at the same time, provide some scope for assistance to countries of other economic regions and continents.

D. Soil

29. Soil has very often been mentioned in national monographs; however, the problems connected with it are analyzed from purely technological points of view, with particular reference to the intensification of agricultural production. As an environmental factor soil has been little investigated so far. It may be due to the fact that the variety of extreme forms of soil types is relatively restricted in the ECE region, and these forms have therefore not become a too urgent problem. Sand deserts, steppes, salinated territories, etc. do not play as important a role in Europe as they do in other economic regions.

30. The use of pesticides, herbicides and other chemical agents contributes to problems of the biosphere and its protection against the negative influences of contemporary production rather than to problems of the environment as such. Their impacts on man are not perceived directly; the consequences of their use become manifest only very indirectly, through the intermediary of a number of specific natural processes. Therefore, also from an economic viewpoint, this complex of problems must

be solved in other connexions rather than in connexion with the environment. In the field of environment the problems of the soil and of its rational utilization come more markedly to the fore primarily in urban development, in transport networks and thoroughfares, etc. This arises, once again, from the general characteristics of the ECE region, particularly the density of population.

E. Urbanization, Industrialization

31. The majority of countries which have presented monographs to the ECE Secretariat mention urbanization and industrialization as one of the most important problems of environment. These phenomena are closely related to each other, their economic consequences and solutions are analogous; therefore, they will be dealt with jointly in the paragraphs which follow.

32. The high concentration of industry and the concentration of labour both in the industry and service sectors have brought about in the past, and continue to do so in the present, the growth of big cities, conurbations as well as large densely populated zones, agglomerations and urbanized landscapes. From the environmental viewpoint it means also a concentration of the sources of negative influences on the environment, such as water pollution, air pollution, noise, excessive exploitation of land for building and production purposes, suppression of natural features in residential areas, etc. Urbanization and industrialization, however, also bring about some other problems which were less discernible in the conditions of less dense population and settlement.

33. Their number includes elimination of waste water and of solid wastes, cleansing of cities, organization of transport, etc. Notwithstanding that life itself and some of its forms are distorted, social excesses arise which are sometimes as unfavourable as the low standard of environment itself. Owing to the fact that in the majority of countries the process of urbanization and industrialization still proceeds in a more or less unrestrained way, the problems of the environment increase and gain proportions which can hardly be solved efficiently within the framework of local government and, in the case of some minor and economically weaker countries, without the assistance of economically strong countries.

34. However, a low degree of urbanization can also be an economic problem, as has been mentioned in the monographs of some countries. When the population is disintegrated into too great a number of small communities, the overall effectiveness

of the settlement pattern is reduced, the organization of services is made more difficult and in some small communities it is entirely impossible to make them operate efficiently, for instance, underground water supply and sewage disposal both of which have considerable hygienic importance. Those countries, which inherited from the past a settlement pattern with a low degree of urbanization, must also solve very difficult economic problems connected with the transition to the planned and purposively higher standard achieved by concentration of the population in cities and urban areas. As a rule, one finds within the same country regions with a high degree of urbanization and others much less developed and urbanized.

35. Urbanization and industrialization, and the general improvement of the standard of living connected with them, enable a major part of the population to leave the cities over the weekend for individual recreation homes or to have another home for themselves and their families in rural areas and live, according to the season, either in the city where the members of the family work or in the country not far from the city. This practice increases the demands on land, for construction purposes, particularly in the vicinity of big cities, and reduces the area available for group or common recreation. So far Governments and Local authorities have welcomed this development rather than opposed it. This is due to the fact that neither the social nor the economic consequences have yet been identified, also the value of the land and of areas particularly valuable for recreation has been everywhere underrated. Until now, there is also no generally acceptable method of dealing with this problem; therefore, it would be exceedingly useful, if we could contribute methodologically to a solution by a common effort within the framework of the ECE.

III. ECONOMIC EFFICIENCY AND THE ENVIRONMENT

36. It is necessary to pay particular attention to the economic problems of industry in relation to environment. An over-simplified emphasis on the efficiency of industrial production results in neglecting the effects of industry on the environment, in the disturbance of the latter and, finally, in its destruction.

37. The long-run consequences could be a rapid reduction in industrial output and, indeed, in a rapid decrease in overall productivity. However, in some cases, such long-term developments can be delayed for decades and can fully affect another generation.

38. It is indisputable, however, that if rules and requirements for a systematic protection of the environment against the negative influences of industrial production are observed this somewhat reduces the effect of contemporary industrial production. In such cases, a lasting and favourable development of industrial activities can be ensured if the measures taken have a socially favourable impact. The human desire for becoming rich quickly clashes here with the responsibility for the long term development of mankind.

39. The representatives of industry ask those who struggle for the protection and development of the environment a number of very urgent economic questions the answers to which are by no means easy. In recent years such questions have also been raised by representatives of developing countries with regard to their relations to industrially developed countries. It may be concluded that when the Economic Commission for Europe (as an organization of industrially developed countries) began to be concerned with these problems, it took upon itself, without even knowing it, a moral obligation to contribute effectively to the solution of the following problems:

Problem No.1

40. Who will bear the costs of protecting the environment against negative influences and damage and the costs of preventing these disfunctions? Industrial enterprises in industrially developed countries which are making progress in environmental protection, fear that if they alone bear the costs of protection they will lose competitiveness in relation to producers who as yet have not such burdens to bear. It has been proved, however, that industry is the source of the greatest problems of the environment; therefore a policy of requiring industry to reimburse most of the costs connected with environmental protection has been found acceptable in the majority of countries. Nevertheless, a definite answer to this question has not yet been given.

Problem No.2

41. Should and can the costs for protecting the environment and for the prevention of its damage be incorporated into the prices of products and, consequently, be borne by the public? This problem is of great importance not only from the viewpoint of the market within and among the highly developed countries, but also with regard to the countries which have not developed their industry yet and in which the problems of the environment are not so urgent. This question raises a whole series of subsidiary questions. It would seem that it cannot be successfully solved without some highly

developed, methodological research in the fields of economics and a number of other social sciences.

Problem No.3

42. The economic efficiency of investments in any branch of the national economy has to be ascertained by means of relatively accurate calculations envisaging a number of alternative solutions for optimizing the whole investment process. How could a similar accuracy be achieved as regards the effectiveness of investments in favour of the environment or, in the figurative sense, investment in man in general? Are there any reliable criteria or is there any hope they will exist one day? And - should investments of this kind prove ineffective - will it be feasible for human society to continue making them?

Problem No.4

43. Industry, transport and some other economic activities of a modern society are a considerable source of damage to the environment at present, but they also represent the increasing welfare of people. The development of the above activities has been brought about by the generally expanding demand for a speedier and high quality satisfaction of human needs and the desire for things which make human life more pleasant. A general demand for high quality environment does not seem to exist as yet. Can, therefore, some limits be imposed on production and transport for some reason whose general validity has not yet been recognised? Does not the solution lie elsewhere? Etc.

44. It is generally indisputable that only the answers to these basic questions, as well as to a number of other questions which cannot be mentioned because of limited space will open the way to a generally correct solution of environmental problems. The application of such a solution to the concrete circumstances of individual countries will help in finding the correct structure of administration and control in the field of environment and will also assist in the formulation of its further development. It is also indisputable that the solution must be generally preceded by long-term, purposive and planned research work. After all, without the application of research results, even the ECE Conference on Environment would not have taken place.

IV. CONCLUSIONS AND RECOMMENDATIONS

45. It was the purpose of this introductory paper to point out some problems regarding the economic and socio-economic aspects of environment which are not yet entirely clear. These problems will be subject to discussion in the course of the Conference which will try to find solutions and make recommendations. The purpose of this paper was to provoke such a discussion and to draw general attention to these problems. Therefore, it would be impossible, already in this paper, to put forward conclusions summarizing the proceedings of the conference for which the present report can re-present an introduction only.

46. Nevertheless, if some conclusions are still attempted they should be seen as summarizing the contents of the present paper in certain guidelines for discussion. Although the form of the participants in the Conference will freely select the subjects of their contributions within the whole framework of the Conference it would seem most useful if the discussion could concentrate on, inter alia, the following problems:

- (a) The integral assessment of the advantages and consequences of the development of science and technology as well as investments with regard to environment, with particular reference to the regions with a higher density of population and settlement.
- (b) Economic evaluation of the effect on the natural environmental components of economic activities - with particular reference to their general consequences for the ecological system including man as an active component.
- (c) Social and socio-economic consequences of environmental changes brought about by the economic activities of human society, particularly by industrialization, urbanization, transport development, etc.
- (d) Problems of rational utilization of natural resources and natural environment for the satisfaction of the needs of modern society with particular reference to the problems of remoulding environment and eliminating the consequences of past developments.
- (e) Planned and balanced development of the environment and of all its components with particular reference to maintaining the biological and social equilibrium of the development of human society and the satisfaction of its continuously growing needs and requirements and the economic prerequisites for the attainment of these aims.

47. Although the discussion can result, even in the present state of development, in a number of recommendations regarding concrete steps to be taken both by the individual Governments and by the ECE and other international organizations, it clearly cannot be terminated at this Conference. The continuation of such a discussion could become one of the items in the long-term work programme of the Economic Commission for Europe.